Gold Bond®

ROCK WOOL INSULATION

why

where

how

do-it-yourself booklet for home owners

COTTMAN LUMBERTERIA
1901 Cheltenham Avenue
Elkins Park 17, Pa. Phone: Tu 4-8750

Gold Bond®

SPUN ROCK WOOL INSULATION

WHY Insulation has earned universal recognition as a necessary investment that will pay year 'round dividends. It is no longer a question of whether to insulate or not but rather—where to insulate—how much is needed—what kind to use and how to install it. Insulation's primary function is to provide an effective barrier to the passage of heat—keep it out in the summer and keep it in during the winter.

in winter A home fully insulated with Gold Bond Spun Rock Wool Insulation will give fuel savings up to 40%. If the attic is not insulated, the addition of Regular Gold Bond Rock Wool insulation in this area can increase fuel savings up to 25%. You can readily see that these savings in fuel alone, year after year, would more than pay for the cost of insulating within a very short time.

Room to room temperatures are more uniform. Drafts along floors and stairwells are minimized and your heating plant will do a more efficient job without being overworked. Storm sash and weatherstripping should be installed to obtain best results.

in summer The value of insulation proves of equal, if not greater importance in economy and comfort that can be derived during the warm summer months.

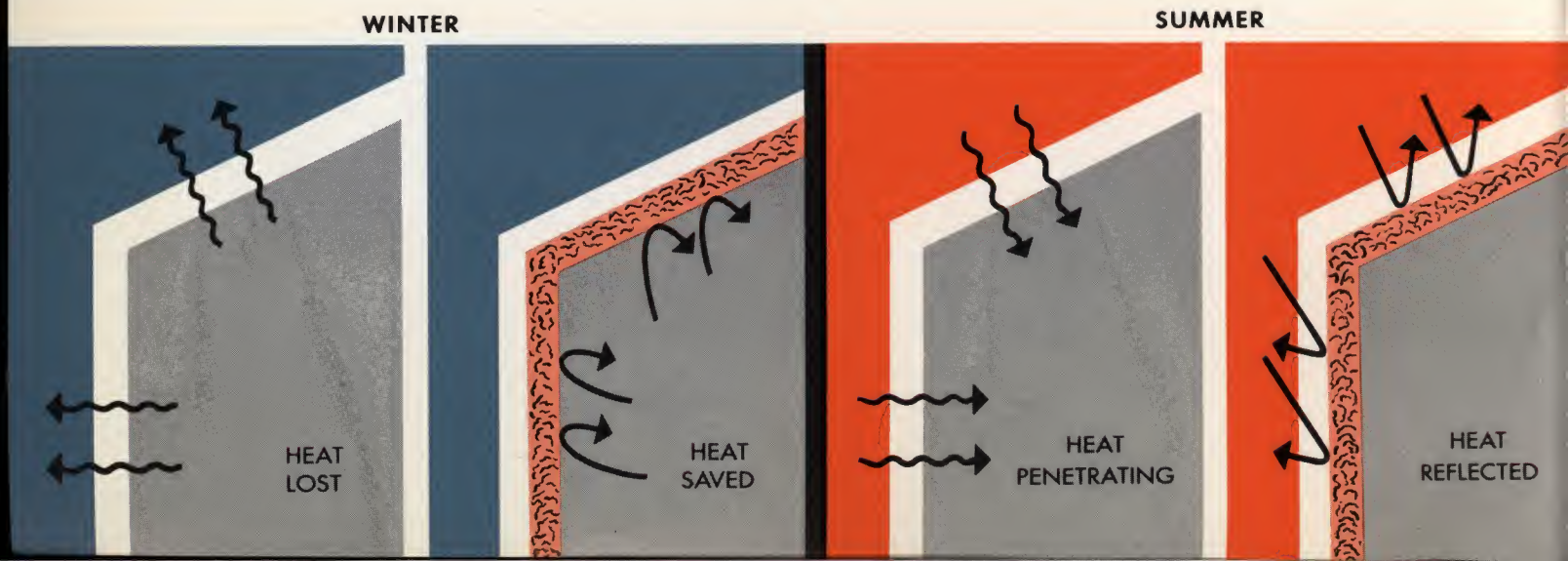
On hot summer days attic temperatures reach as high as 155°! This heat is conducted through attic floors and walls into living quarters on the lower floors. 20% more insulation value can be achieved with Twinsulation than with Regular Blankets. Installation of Gold Bond Twinsulation Blankets in the attic will reflect back 80% of this radiated summer heat and keep your rooms as much as 15° cooler.

If the home is air conditioned, greatly reduced operating expenses will prevail. Consider the fact that it costs as much to lower the temperature in your home 10° as it costs to raise the temperature 50° in winter. If air conditioning is being considered, it is possible to use a smaller cooling unit when Gold Bond Twinsulation is installed.

Complete summer comfort, everyone can afford, is made possible with Gold Bond Twinsulation®.

In uninsulated attics, as much as 25% of heat can be lost through the roof. Evidence of this can be seen after a light snow fall. The heat escaping through the roof melts the snow.

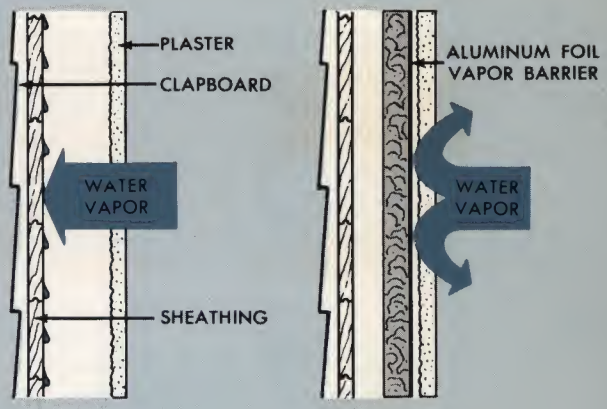
If the snowfall is heavy, the melting snow freezes and forms an ice dam when it reaches the unheated eaves. The gutters become blocked and as more melted snow accumulates, it backs up under the shingles to drip inside. Walls and ceilings are damaged, and require expensive repairing.



Year 'round advantages

permanent vapor barrier Three main sources of excessive moisture in the home are kitchens, bathrooms and laundries. In cold weather moisture vapor from these sources can pass through plaster and across stud space to condense as water on the cold inner surface of sheathing or building paper. This condition if allowed to exist over a period of time, can rot wood sheathing, siding and sills and cause exterior paint to blister.

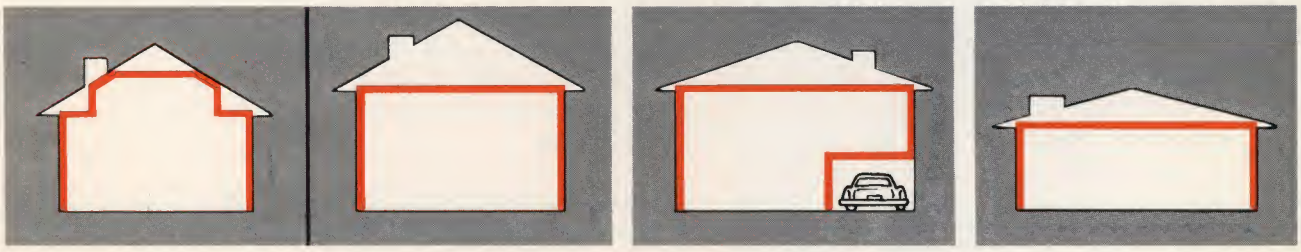
All Gold Bond Spun Rock Wool Blankets have a built-in vapor barrier to prevent this transfer of water vapor. For this reason, we stress the importance of installing the blanket with the barrier facing the heated side of the wall. This side of the blanket is clearly marked.



permanent fire barrier All Gold Bond Spun Rock Wool Blankets add fire protection to your home—the Rock Wool cannot burn and forms a barrier to flames wherever installed. Being inorganic, it cannot rot or deteriorate with age.

No annual maintenance is required with Gold Bond Insulation—your first cost is your last cost. There is no replacement, no repair bills—no power consumption. If you install it correctly, it will be a permanent, cost-free economy and comfort.

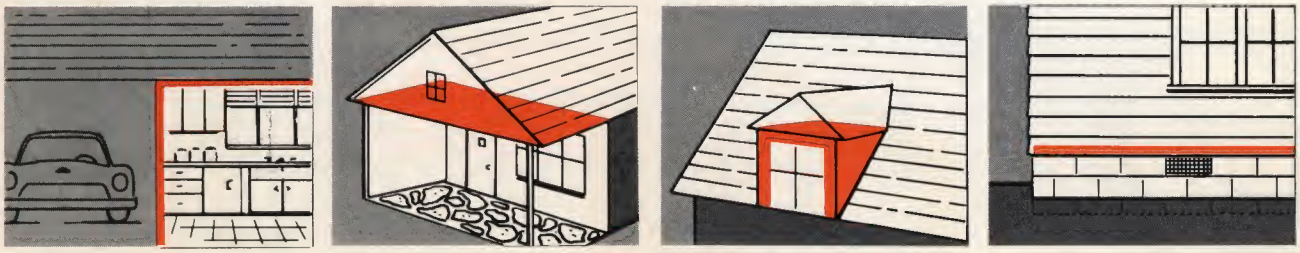
where to insulate



1½ or 2 STORY
Insulate the top floor ceiling. If the attic is used for living area, insulate at the knee walls, rafters and collar beam.

SPLIT LEVEL
All walls, ceilings and floors facing unheated areas.

RANCH
All ceilings. Floors over unexcavated areas.



walls facing unheated areas

floors over unheated areas

dormers

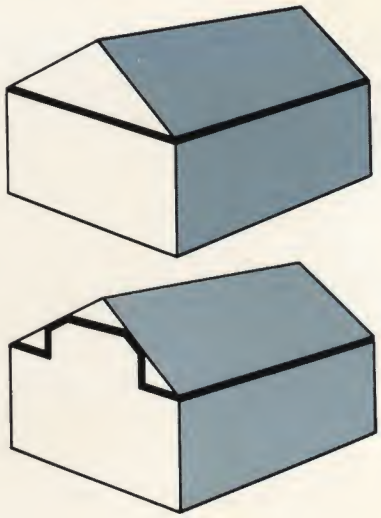
floors under heated porches

HOW you can insulate your attic easily

measure There are two ways to insulate your attic. The easiest method being to lay the insulation blankets between the joists in an unfloored attic. Just measure the length and width of the area to be covered and the space between centers of joists.

If you plan to use the attic as extra living area, measure the distances from the eave to knee wall studs, up knee wall studs to the rafters, along the rafters to the collar beam, across the collar beam and down the other side. Multiply by the length.

Check the distances between framing members (studs, rafters and collar beams) and make note if there are any irregularly spaced (insulation blanket widths come only in 15″, 19″ and 23″). Take these measurements to your Gold Bond Dealer. He can readily estimate how much insulation you are going to need to do the complete job and how much it will cost you.



application All the tools you need are a staple gun and staples or hammer and nails, a ruler and a sharp knife.

unfloored attic Use 15″ wide blankets between floor joists spaced up to 16″ on centers; 19″ wide blankets between joists spaced 17″ to 20″; 23″ blankets between joists spaced over 20″ on centers. Lay blankets with *vapor barrier* (printed side on regular and gold edge on Twinsulation) *face down*. Butt blanket ends snugly into eaves but do not block any air vents in eaves. Butt all blanket sections closely together. Cut as necessary to fit tightly around obstructions. Use Full-Thick Twinsulation Blankets for the added protection of their heat-reflective covering against summer heat.

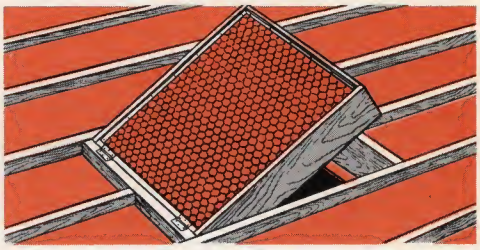
floored, unfinished attic Add collar beams, if absent, at least 24″ below ridge. Provide vents as instructed on Page 6. Firmly seat insulation into eaves with *vapor barrier facing attic interior*. Work upward between knee studs, rafters, then across, between collar beams, snugly butting all sections together, especially at meeting point of opposite sides. In ceilings—Staple 15 in. material every 6 in., 19 in. material every 5 in., 23 in. material every 4 in. along each nailing edge.

floored, finished attic *With vapor barrier face-down*, butt insulation snugly into eave. Continue between open floor joists to kneewall, thence up kneewall to rafter slope. Clamp a skirt hanger to end of blanket. Fasten wire to hanger. Draw blanket into rafter slope, vapor barrier down. Continue between collar beams. Butt sections closely together. Join snugly where insulation from both sides meets.

with Gold Bond Spun Rock Wool Blankets

attic access areas If access to the attic is by means of a trap door, insulate the attic side of the trap door with Gold Bond Rock Wool Blankets and weatherstrip the edges of the opening.

Where attic insulation is confined to the attic *floor* area, the attic stairwell should be lined with ½″ Gold Bond Insulation Board. The stair side of the stairwell door should be covered with a snugly fitted panel of the same material and the door should be weatherstripped for added protection.



In recessed application flange is fastened inside of stud or rafter.

Flush application is recommended for both Twinsulation and Regular Blankets. Butt each succeeding blanket flange to the side of the last. Attach flange by nailing or stapling at 6 inch intervals along both sides.

If ventilation requirements are sufficient (see chart, page 6) additional insulating value can be obtained by using recessed application of Twinsulation in ceilings.

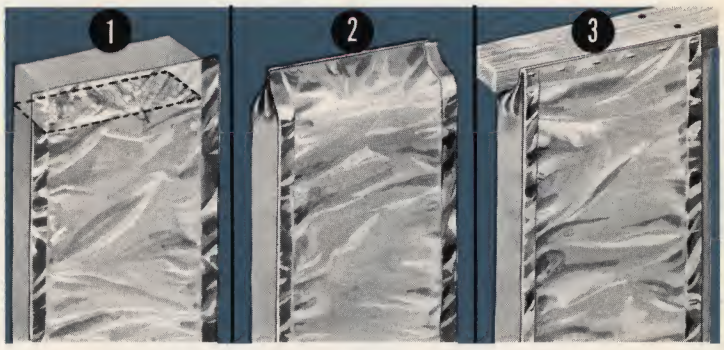
In flush application flange is fastened to face of stud or rafter.

making end flanges

1. Remove or compress wool at end to give 1½″ or 2″ of empty blanket cover.

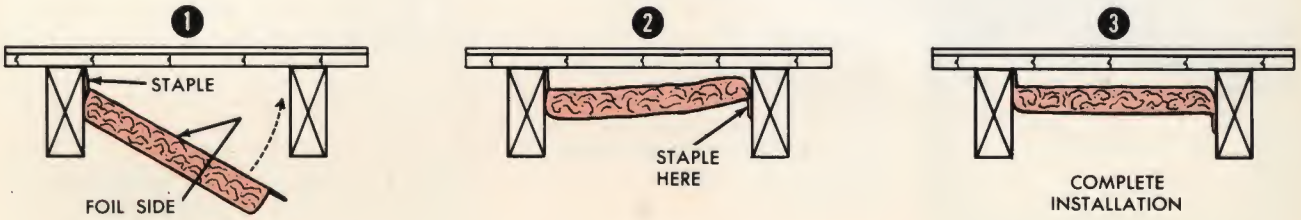
2. Tuck in sides and bring the outer cover in to meet the inner cover.

3. Fold over once and staple this end flange to top framing member. (Do the same with the other end and secure it to bottom framing member.)



insulating crawl spaces, garage and open porch ceilings (with heated area above)

Semi-Thick (2″) Twinsulation is highly recommended for this type of installation. It will withstand extremes of temperature and humidity that tend to prevail in these areas. It is not necessary to use a wire mesh or any other support to keep it in place. Just staple, using the method shown below. Be sure the foil (vapor barrier) side faces the floor or heated side. Staple every 4 inches.



general recommendations for new construction

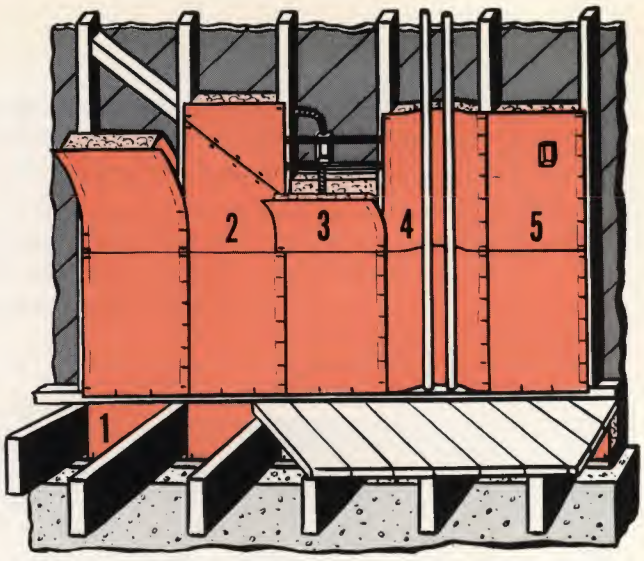
1. Start insulation from bottom of stud spaces below floor line. Continue upward above floor line, snugly butting sections together. Vapor Barrier MUST ALWAYS FACE BUILDING INTERIOR. Nail flange to studs.

2. Cut wool as necessary to fit and completely fill all angles, corners and irregular spaces. When cutting, allow for trimming back wool to provide nailing flange overlap on framing at sills, plates, etc.

3. Where electrical cables or conduits or large pipes obstruct stud panel, split wool to enclose them front and back.

4. To protect water pipes from freezing, apply insulation to cold side (behind pipes, next to sheathing).

5. Cut vapor barrier only when necessary and fit snugly around outlets, etc.

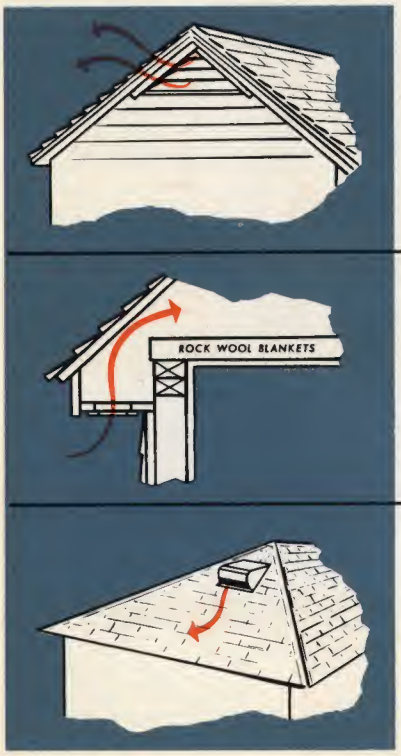


ventilation

When you insulate do not neglect ventilating considerations. This is very important so that hot air and moisture from the outside do not become trapped in the space above the insulation. Free air circulation through air spaces beyond the insulation is necessary for greatest insulation efficiency and condensation control.

Generally, vents for gable roofs should not be smaller than one square foot (144″) of *free* inlet and outlet area per every 300 square feet of attic floor area. For flat roofs the inlet and outlet areas should be twice as large. Crawl spaces should be vented with 1 sq. ft. of inlet and outlet area per 100 sq. ft.

types of ventilators Your Gold Bond Dealer can supply you with the type of ventilator you need for any specific application, weatherprotected and screened against insects, together with the manufacturer's data on gross area, net free area and installation directions.



1. GABLE VENT: Designed for use in peak of gable wall. When serving as exhaust vent, it should be located as high as possible. At least two, placed in opposite gable walls for cross ventilation, should be used.

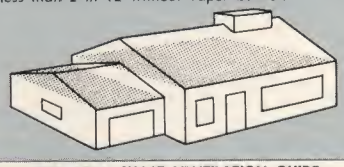
2. EAVE VENT: Placed in underside of eave, it supplements the gable or roof vents for maximum cross ventilation. *Be sure* insulation installed between the floor joists or roof rafters does not block vents.

3. HIP ROOF: A valuable type since ventilation is especially desirable for the low attic headroom under most hip roofs. Works best in combination with eave vent described above and placed high as possible in roof.

HOW TO USE THE FREE AREA CHART

Using length and width dimensions of each rectangular or square attic space, find one dimension on vertical column, other dimension on horizontal column. These will intersect at number of **square inches** of ventilation required to provide 1/300.

Multiply this required ventilation by two for roof slopes of less than 2 in 12 without vapor barrier.



FREE AREA CHART VENTILATION GUIDE

Dimensions in Feet: Free Area Given in Square Inches*

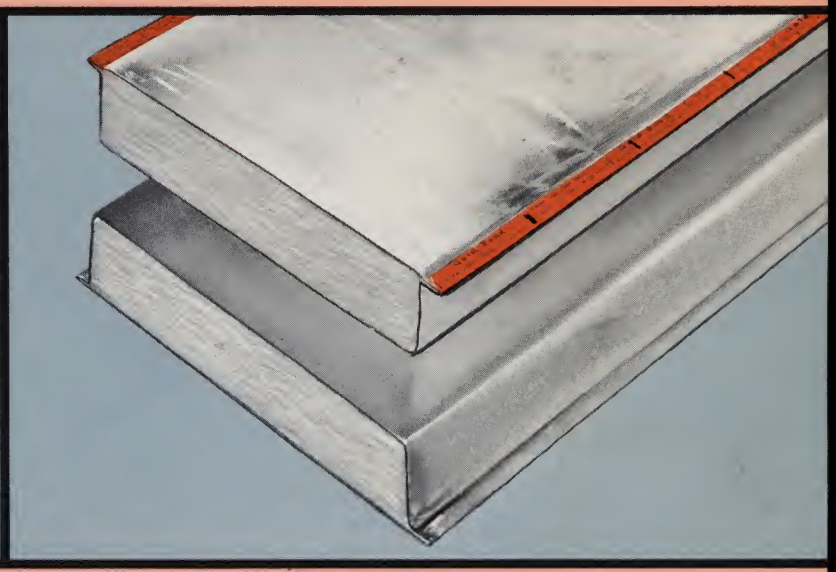
Length (in feet) \ Width (in feet)	20	22	24	26	28	30	32	34	36	38	40	42
20	192	211	230	250	269	288	307	326	346	365	384	403
22	211	232	253	275	296	317	338	359	380	401	422	444
24	230	253	276	300	323	346	369	392	415	438	461	484
26	250	275	300	324	349	374	399	424	449	474	499	524
28	269	296	323	349	376	403	430	457	484	511	538	564
30	288	317	346	374	403	432	461	490	518	547	576	605
32	307	338	369	399	430	461	492	522	553	584	614	645
34	326	359	392	424	457	490	522	555	588	620	653	685
36	346	380	415	449	484	518	553	588	622	657	691	726
38	365	401	438	474	511	547	584	620	657	693	730	766
40	384	422	461	499	538	576	614	653	691	730	768	806
42	403	444	484	524	564	605	645	685	726	766	806	847
44	422	465	507	549	591	634	676	718	760	803	845	887
46	442	486	530	574	618	662	707	751	795	839	883	927
48	461	507	553	599	645	691	737	783	829	876	922	968
50	480	528	576	624	672	720	768	816	864	912	960	1008

*Chart shows square inches of free area required, based on 1/300.

Gold Bond®

ROCK WOOL BLANKETS

. . . for every type of house



Regular Spun Rock Wool Blankets have all the insulating properties of the deluxe Twinsulation Blanket except the aluminum surfaced cover. They have a vapor barrier on the face side and a "breather cover" on the other to help eliminate condensation. The fire-resistant spun rock wool is securely adhered to the inside of the cover, and it will not slip or fall out in handling and will not settle or mat when installed. Blankets are rigid enough to facilitate easier handling. Sufficiently wide flanges on the long edges permit simplified fastening with nails or staples where needed.

SIZES

	MAT-THICK	SEMI-THICK	FULL THICK
Widths	15″	15″ 19″ 23″	15″ 19″ 23″
Lengths	8′	2′ 4′ 8′ 4′ and 8′	2′ 4′ 8′ 4′ and 8′

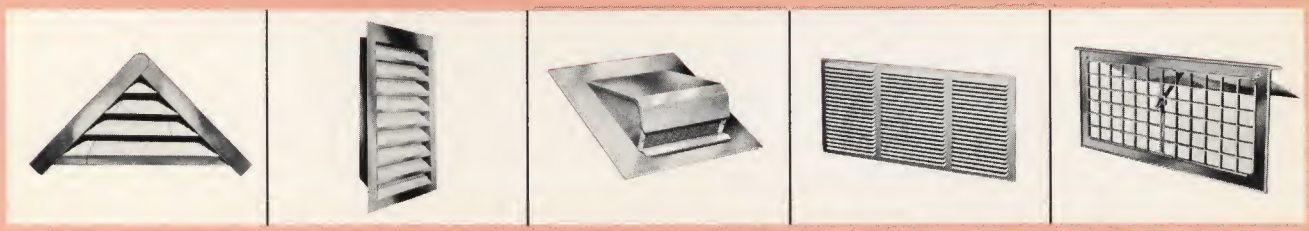
Twinsulation® is a combination of fire-resistant rock wool enclosed on all sides with an aluminum surfaced cover. The reflective aluminum surface prohibits the flow of radiant heat and the spun rock wool blocks the flow of conductive heat. The vapor barrier on one side and the breather cover on the other help prevent condensation.

The entire blanket resists the spread of flame. Triple thick nailing flange on the long edges cannot rip or tear away when installed. The rock wool is adhered to both sides of the cover, it won't slip or settle and makes a more rigid, easier handling blanket.

SIZES

	SEMI-THICK	FULL THICK
Widths	15″ 19″ 23″	15″ 19″ 23″
Lengths	8′	8′

Gold Bond Aluminum Louvers and Ventilators



Adjustable and Fixed Louvers
Adjustable—7 Sizes. Net free area 23 to 363 sq. in.
Fixed—14 Sizes—From 38″ to 12′ Base—Net free area 39 to 700 sq. in.

Flush and Recessed Louvers
Flush—11 Sizes up to 30″ x 24″
Recessed—7 Sizes up to 24″ x 30″—Net free area—23 to 348 sq. in.

Roof Ventilators
For any pitch shingle roof—3 Sizes—Net free area 18 to 70 sq. in.

Wall and Under Eave Ventilators
For under eave, cornice or soffit installation—Net free area—23 to 56 sq. in.

Foundation Ventilators
For unexcavated areas—Two types—Fit standard 16″ x 8″ Block opening—Net free area 53 and 60 sq. in.

HOW TO COMPUTE FUEL SAVINGS OF ATTIC INSULATION WITH GOLD BOND ROCK WOOL

Under Chart IV at right is a simple formula for quickly figuring the approximate amount of fuel saved with Full-Thick Gold Bond Spun Rock Wool Insulation in your attic. Its basis: Scientific tests made over the years by commonly accepted authorities have established the rate of heat transmission through most forms of building materials. When such materials are combined to form a ceiling or roof, their separate rates of heat transmission can then be combined to determine the amount of heat that will pass through one square foot of the construction in one hour for every degree of temperature difference between the opposite sides of the construction. This rate of heat transmission is called the "U" value.

The U value is stated in British thermal units (Btu)—practically, one unit being the amount of heat required to raise the temperature of 1 lb. of water 1° F. Chart I below gives these U values as they have been established* for top ceiling areas. The last column shows the savings of heat provided by Gold Bond Full-Thick Spun Rock Wool Blanket insulation. These values are for combined roof and ceiling construction when insulation is placed over top floor ceiling, and are savings per square foot of ceiling area—not roof area.

CHART I

Construction	Heat Flow or U Value*		Heat Saving Coefficient
	Uninsulated	Insulated	
Top Floor Ceiling under Roof as follows: Wood Shingle	.29	.08	.21
Asbestos or Asphalt Shingles, Composition Slate or Tile	.31	.08	.23

To find the minimum total of degrees of heat you must maintain inside your house for comfort, multiply the difference between an inside temperature of 65° and the average outdoor temperature of the heating season, by the number of days in the heating season. Chart II, shown below, gives these totals—known as "degree-days"—for representative cities of the United States as compiled from U. S. Weather Bureau records from 1899 to 1946. If your city is not listed, use the degree-days given for the city nearest you.

CHART II

DEGREE-DAYS FOR HEATING

State	City	Deg.-Days	State	City	Deg.-Days
Ala.	Birmingham	2611	Miss.	Vicksburg	2069
	Mobile	1566	Mo.	Kansas City	4962
Ariz.	Phoenix	1441		St. Louis	4596
Ark.	Little Rock	3009	Mont.	Havre	8416
Cal.	Los Angeles	1391	Nebr.	Lincoln	5980
	San Francisco	3137		Omaha	6095
Colo.	Denver	5839	Nev.	Winnemucca	6357
Conn.	New Haven	5880	N. H.	Concord	7400
D. C.	Washington	4561	N. J.	Atlantic City	5015
Fla.	Jacksonville	1185	N. M.	Santa Fe	6123
Ga.	Atlanta	2985	N. Y.	Albany	6648
	Savannah	1635		Buffalo	6925
Idaho	Boise	5678		New York	5280
Ill.	Chicago	6282	N. C.	Raleigh	3275
	Springfield	5446		Wilmington	2420
Ind.	Evansville	4410	N. D.	Bismarck	8937
	Indianapolis	5458	Ohio	Cincinnati	4990
Iowa	Des Moines	6375		Cleveland	6144
	Sioux City	6905		Columbus	5506
Kans.	Dodge City	5069	Okla.	Oklahoma City	3670
	Topeka	5075	Ore.	Baker	7197
Ky.	Louisville	4417		Portland	4353
La.	New Orleans	1203	Pa.	Philadelphia	4739
	Shreveport	2132		Pittsburgh	5430
Me.	Eastport	8445	S. C.	Charleston	1866
	Portland	7377		Columbia	2488
Md.	Baltimore	4487	S. D.	Huron	7940
Mass.	Boston	5936		Rapid City	7197
Mich.	Detroit	6560	Tenn.	Memphis	3090
	Marquette	8745		Nashville	3613
Minn.	Duluth	9723	Texas	El Paso	2532
	Minneapolis	7966		Fort Worth	2355
				Houston	1315
				San Antonio	1435

CHART II—Cont'd.

DEGREE-DAYS FOR HEATING

State	City	Deg.-Days	State	City	Deg.-Days
Utah	Salt Lake City	5650	W. Va.	Elkins	5800
Vt.	Burlington	8051		Parkersburg	4928
Va.	Norfolk	3364	Wisc.	Green Bay	7931
	Richmond	3922		LaCrosse	7421
Wash.	Seattle	4815		Milwaukee	7079
	Spokane	6318	Wyo.	Cheyenne	7536
				Lander	8243

Finally, Chart III gives the amount of heat (Btu) you can secure from the fuel you use, with your heating plant operating at reasonable efficiency.

CHART III**

Fuel	Unit	Calorific Value, Btu.	Efficiency of Utilization	Net Heating Value, Btu.
Coal	Lb.	12000	55%	6600
Coke	Lb.	12500	55%	6875
Oil	Gal.	137500	70%	96250
Gas (artif.)	Cu. ft.	530	75%	398
Gas (nat.)	Cu. ft.	1000	75%	750

When these three factors are known, you can apply them to the square foot area of the top floor ceiling to be insulated.

Example: A house in Buffalo with a wood shingle roof, uses oil for fuel and has a top floor ceiling area of 700 square feet. Then 700 sq. ft. x .21 (the coefficient of heat saved by Full-Thick Gold Bond insulation in 1 hour per sq. ft. from Chart I) x 24 hours in a day x 6925, (the number of degree days in Buffalo's heating season from Chart II) gives a total of 24,431,400 saving in Btu per season.

To reduce this to terms of fuel oil, divide by 96,250, the net Btu heating value per gallon of fuel oil (from "Oil" in Chart III) and the result is 254 gallons of fuel oil saved by attic insulation. At 13 ½c per gallon the savings in dollar value represents $34.29 per season!

To simplify such calculations, Chart IV has been devised. In it each heat saving coefficient for 1 hour given in Chart I has been multiplied by 24 for daily hours and divided by the number of Btu per unit of fuel.

CHART IV

Heat Saving Coefficient With Full-Thick Spun Rock Wool Insulation For:

Construction Insulated	Coal (ton)	Coke (ton)	Oil (gal.)	Artfl. Gas (M cu. ft.)	Nat. Gas (M cu. ft.)
0000 omitted; insert after decimal of value given; thus, .0038 becomes .00000038					
Top Floor Ceiling Under Roof Of:					
Wood Shingle	.0038	.0037	.524	.127	.067
Asbestos or Asphalt Shingles, Composition, Slate or Tile	.0042	.004	.574	.139	.074

Applying the figures of Chart IV to the same oil-heated house in Buffalo with its wood shingle roof, you have:
700 sq. ft. x .0000524 heat saving coefficient x 6925 degree days =254 gallons of fuel oil saved at 13½c per gallon making $34.29 per year.

A recent study by H. T. Gilkey and D. R. Bahnfleth of the University of Illinois shows equally impressive savings in the cost of air-conditioning through the use of mineral wool insulation. Their calculations were based on a one-story house of 8,146 cu. ft. and ceiling area of 1,040 sq. ft. The results indicate that Full-Thick Gold Bond Twinsulation in the ceiling of such a house reduces by 50% the capacity of the cooling unit required. This means a saving in the original cost of the air conditioning plant and in cost of operation all during its use.

*Based on values given in 1956 edition of "Heating, Ventilating, Airconditioning Guide" published by American Society of Heating and Ventilating Engineers.

**Based on values given in University of Minnesota Bulletin No. 23, "Economics of Insulation," and in various handbooks on fuel.

Gold Bond BUILDING PRODUCTS

NATIONAL GYPSUM COMPANY • BUFFALO 2, N. Y.

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